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SHORTER ARTICLES AND DISCUSSION

SOLID MEDIA FOR REARING DROSOPHILA

BAUMBERGER and Glaser (1) recently described a method of raising the banana fly on transparent solid media, thus enabling the investigator to observe more accurately the rate of growth and metamorphosis and the larval habits of this insect. The medium was made as follows:

> Five or six bananas were mashed up in 500 c.c. of water. This was allowed to infuse on ice over night, after which the liquid was passed through cheese cloth. Powdered agar-agar was then added in the proportion of 1½ gm. to 100 c.c. of the banana infusion. This was then heated until the agar had dissolved. The liquid was then filtered through a thin layer of absorbent cotton into test tubes. The tubes were then plugged, sterilized and slanted in the customary manner.

As pointed out in the above article, one of us (2) had observed that the bacterial growths which always develop on this medium "do not seem to harm the larvæ" and the mold which sometimes appears "is usually destroyed by the larvæ just as soon as they hatch." This question was further investigated and it was found (2) that the prinicpal food of *Drosophila* is yeast and the flies can not develop on banana which is kept free from microorganisms.[1] Delcourt and Guyenot (3) had previously (unknown to the author) published similar conclusions and Loeb and Northrop (4) had confirmed them shortly before the author's report (2) was sent to press.

It is therefore very well known that the food of *Drosophila* is yeast and the prime necessity of any medium for rearing this fly must be either abundant food for yeasts to grow upon or the presence of large numbers of yeast cells. If a medium is made of sterile compressed yeast and agar-agar[2] it serves as a perfect food for flies which have been freed from microorganisms; however, if living yeasts develop young larvæ are usually killed. As adult flies usually carry living yeast cells upon them this medium would be difficult to use for work in heredity. A nutrient medium for yeast would best suit the needs of geneticists. Into such a food the adults or pupæ would carry living yeast cells which would ferment the sugars and produce odorous substances which cause oviposition by the female fly. Larvæ on hatching would spread the yeasts throughout the medium, thus increasing growth and alcoholic fermentation which may prevent the development of injurious microorganisms.

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[1] Loeb and Northrop (4) raised a few flies on aseptic banana, but all flies were sexually sterile. Guyenot (5) also succeeded in raising a small percentage of flies on sterile potato.

[2] An excellent nontransparent medium consists of yeast cake moistened with water.

Two media might be suggested for this purpose, viz.: Fermented banana agar and Pasteur's nutrient agar. The former may be prepared by adding two cakes of bread yeast separated in 100 c.c. of water to one dozen mashed bananas, mixing thoroughly and allowing to ferment for twenty-four hours. This material should be pressed through a sugar sack and the liquid resulting thickened by heating with 1.5 gm. agar-agar per 100 c.c. and poured into slant culture tubes, plugged and sterilized.

A perfect nutrient medium for yeast consists of 10 gm. ammonium tartrate, 10 gm. ashes of yeast, 100 gm. rock candy, 1,000 gm. distilled water. This is called Pasteur's culture fluid and can be treated in the same manner as the above but should be sterilized in an Arnold sterilizer for three successive days, as it can not be heated to as high a temperature as the banana without preventing jellation. Pasteur's nutrient solution can be approximated by diluting molasses with three parts of water.

In the two media described above yeasts develop rapidly and furnish abundant food for *Drosophila* larvæ and also produce odors of fermentation which cause the female to oviposit readily. A concentrated food for yeast such as banana flour would probably increase the value of the first medium as this substance is now used for raising yeast in the brewing industry (6).

REFERENCES

1. Baumberger, J. P., and Glaser, R. W. *Science*, N. S., XLV, pp. 21–22.
2. Baumberger, J. P. *Proc. Nat. Ac. Sc.*, III, pp. 122–126.
3. Delcourt and Guyénot, *Bull. Sc. France et Belgique*, T. 45, pp. 249–332.
4. Loeb, J., and Northrop, J. H. *Jr. Biol. Chem.*, XXVII, pp. 309–312.
5. Guyénot, E. *Compt. Rend. Soc. de Biol.*, 1913, LXV, pt. 1, p. 178.
6. Nagel, Z. *Spiritusind.*, 35, p. 185.

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